Fractional laser System

User's Manual

NUTRIDERMOVITAL SL.

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About us

NutriDermoVital SL. the professional manufacturer of laser beauty equipment. It is a high and new Electronics enterprise which involves in R&D, production and sales together. The management concept of “Quality Orientation, Credit Superiority” is the basic principle that Nutridermovital SL. serves the society. We consistently pursue the enterprise spirit of “self-reliance and self-improvement, solidarity and struggle, pioneering and innovative”. With high and new Electronics leading company in product development and marketing, the company stands at the forefront of laser medical beauty apparatus in the domestic market.

The company owns a group of experts engaged in optoelectronic industry for many years and high-tech talents specializing in the R&D of software and hardware. NutriDermoVital SL. takes advantage of high-tech methods to achieve the intelligent control and application of laser and advocates the domestic laser cosmetology. The cooperation with numerous medical cosmetic surgery institutions promotes the continuous improvement of our products in the market segments and clinical applications. Our products gain high reputation widely from both new and regular customers’ for their superior price performance, diversiform variety, reliable reputation and perfect after-sales service.

The company has stable marketing network with products exported to Europe and America, Middle East, Southeast Asia including America, Canada, Russia, Germany, India, Malaysia, Singapore, and many and other countries and regions.
Electronics adjusts the direction of R&D in accordance with market development and promotes constant innovation so as to better satisfy the demands of medical beauty and different customers home and aboard.

Our company upholds the long-term principle of “Quality first, Credibility supreme, mutual development” and looks forward to cooperate sincerely with all customers home and abroad. We hope to make progress together with our partners and contribute to medical beauty industry as much as we can.

Copyright avowal

This specification is specifically for NDV Co2 fractional laser manufactured by NutriDermoVital SL. Our products have been constantly improved and updated, so accordingly, we keep the rights to alter the product specifications and instructions in reserve. Please excuse us for not giving further notice.

Specific operations should be processed according to the material objects. The company shall not be responsible for the damages or hidden troubles caused by improper installation, utilization and maintenance directly or indirectly, intentionally or unintentionally. Please read this specification in detail before installation and keep it properly.

The specification is compiled and published by NUTRIDERMOVITAL SL. The final authority for the interpretation belongs to our company.

We make the special declaration hereby.

NUTRIDERMOVITAL SL.

Attentions

- ✧ Before installation debugging and use it, must read the instruction, according to specifications operation.
- ✧ Instruments shall be placed in the clean room with temperature 5℃-35℃ and relative humidity ≤80%, with low dust ensure inside machine cooling water not freezes, lest cause laser tube crack.
- ✧ Please choose the well-ventilated place to install instruments. Without disturbance of high magnetic fields and high indoor air quality, without corrosive particles and conductive dust etc. Do not place instruments around the heat source, such as radiators, heat emitters, heat dissipation ventilating ducts, and etc. Do not put instruments in the place with direct sunlight, disturbance of high magnetic fields and mechanical vibration. Make sure the safety ventilation distance is great than or equal to 30cm.
- ✧ There are built-in precise and fragile optical devices in treatment hand pieces. Take strict precautions against dropping down, falling down, hits and knocks. To avoid damage.
- ✧ During the water injection process, only purified water and medical distilled water can be used. Do not use other kinds of water. If the instrument is used for the first time, or when people exchange water, make sure to add water for the second time and let out the remaining water completely.
- ✧ There are built-in precise and fragile optical devices in treatment hand pieces. Take strict precautions against dropping down, falling down, hits and knocks. All the connecting lines should be inserted and connected properly. Do not misplug.
- ✧ The machine doesn't work，the machine transfers the light should be set in the safe area in order to protect the eyes.
- ✧ When the machine is working, you should protect the eye or the skin from the laser light reflex. Do not pull the light- transferring arm.
- ✧ When operating do the safety protection and the earth wire well. The person should wear the safety goggles within the high pressure insulating mat. Forbidden to change the safety device and aim to the eye and the skin.
- ✧ If you do not use it for a long time (about one month), you should let it work about 5-10 minutes to make sure it is normal. You’d better power on the machine one time at least in one month, dropt the water in the water box.
- ✧ When in the critical situation (such as the noises or peculiar smell), please stop the machine to check.
- ✧ If you want to check the machine, please wait for over 5 minutes after turning off the machine till the high pressure get to zero and then open the machine.
- ✧ To change the laser tube, you should know the negative pole and the positive pole to connect them tightly; and you should distinguish the in and out water pipes to get the best cooling effect.
- ✧ If everything is OK, you can turn the emergency stop switch in the arrow direction to let it upspring and the start to work again.

Chapter 1 Product synopsis

1 Principles of Clinical Application

The fractional laser is adopting the most advanced Electronics of Ultra Pulse CO2 laser and scanning technique of full automatic computer accuracy control, and utilizing CO2 laser heat penetration, under the guidance of the precise scanning of galvanometers, CO2 fractional laser forms minimally invasive holes in matrix form with diameter of 0.12mm on skin; under the energy and heat of laser, tissues around wrinkles or scars are symmetrically gasified instantaneously and the micro heating area comes into being. It stimulates the collagen protein synthesis and then activates some cutaneous reactions, such as tissue repair and collagen rearrangement. The random breeding and regeneration of fresh collagen makes skin tight and lustre, reduces wrinkles, eliminates pouch and flattens scars. At the same time of tendering skin and removing wrinkles, large pigment and spots are blasted into dust or they are taken out of the body via exuvium or lymphatic circulation with the effects of skin tightening, skin tendering, pigment spots removal and skin whitening.

Fractional laser therapy covers partial skin tissues and new holes can't be overlapped by each other. So the normal skin is reserved and it accelerates the recovery of normal skin. During the treatment, the water in skin tissues absorbs laser energy and then vaporizes into many micro lesion areas in cylinder shape. The collagen in micro lesion areas shrinks and increases. And normal skin tissues as the thermal diffusion areas can prevent side-effects caused by heat injury. Simultaneously, it promotes the quick healing of the skin achieving the effects of skin tightening, skin tendering, scar removal, pore shrinkage, etc.

The target of fractional laser is water, so CO2 fractional laser is appropriate for all skin colors. Another advantage of fractional laser is that it can scatter the faculas with dense and huge energy into hundreds of minute focal spots. It scatters heat symmetrically, relieves pain greatly and reduces the side-effects of laser treatment

2 Clinical Applications

CO2 laser possesses the functions of cutting and grinding skin, vaporizing tissues, stopping bleeding, fusion, ablation and sterilization, etc. It promotes the quick healing and reconstruction of skin, remodeling and regeneration of collagen. Fractional laser equipment possesses multi-heads. Customers can change the treatment heads to produce multiple uses.

1. Laser resurfacing surgery
2. Laser wrinkle removal surgery
3. Laser scar removal surgery
4. Laser blepharoplasty
5. Other applications: Removal of pimented naevus, chloasmas, freckles, age

pigments, warts, seborrheic keratosis, syringoma, acnes, milia, striae gravidarum; Pore shrinkage; Skin tightening; Laser hairtransplant; Laser breast augmentation; Laser hair removal, and etc.

3 Range of taboos and caution

- ★ Forbidden be used by notifiable disease in the active stage and symptom appearance for Aids, tuberculosis, hepatitis
- ★ Forbidden be used by blood disease , all kinds of Hemorrhagic disease and bleed tendency persons for cerebral hemorrhage，gastrorrhagia，uterine hemorrhage。
- ★ Forbidden be used by serious heart disease for DHF, congenital heart ，acute myocarditis disease，Priming complex，atrial fibrillation，ventricular fibrillation.
- ★ Forbidden be used by who fever overs 38℃.
- ★ Forbidden be used by nervous disease patient for mental disorder, kawasaky disease, hysteria.
- ★ Forbidden be used by cirrhosis later period，hepatonecrosis，
- ★ Forbidden be used by pregnant woman and weak persons
- ★ Forbidden be used by photosensitization persons.
- ★ Forbidden be used by cicatricialdiathesis.
- ★ Be careful used by every kind of the patient for example: serious hypotension, hypertension, hypoglycemia, anemia, little blood cells.
- ★ Be careful used by women period and lactation period
- ★ Be careful used by perceptual disturbance and unormal skin persons.

■ **Tips: when you treating please choose the suitable output laser power and the treating time.**

4 Product technical parameters

Laser’s wavelength	10600nm	Graphic area	≤ 20mm × 20mm
Wavelength of the target	635 nm	Mode of Spot	single-mode
Power of Target optical	≤ 5mw	Operation	Intermittent and continuous work
Diameter of Focal spot	0.25mm	Scan mode	switching: order, disorder, parallel
Area of Focal spot	0.05mm2	Refrigeration system	Air-cooled and water
Output Power	≤30W (optional)	Optical system	7 articulated arms
Operating voltage	AC 220V ± 10%, 50Hz	Output mode	Super-pulse dot-matrix
Net weight	50Kg	Gross weight	62kg

Output graphic	triangle / square / rectangle / circle/ Oval / hexagon / linear (scalable)

5 Product system advantage

a) National patent of invention, higher Electronics reliability, greater safety performance. (obtain national security certificate, software and hardware R&D design, equipped with multiple security functions, avoiding the equipment outing light by error in fault condition, outing light by error under the state of high-pressure interference state and no light under the water protection etc.)
b) The maximum format of dotmatrix can achieve 30mm and the graphics don't get distortion or transformation through the precise control of the system.
c) Mature fractional laser can regulate the reticular density and the penetration depth, pulse width and energy of fractional laser, with more accurate and reliable positioning.
d) Adjustable of pulse width, facula shapes and sizes, personalized parameter designs and treatments according to patients' skin conditions and treatment goals.
e) Increasing non-sequential scanning technique and maximum pixel pitch scanning technique, making timely diffusion of the adjacent tissues, without the accumulation of heat, reducing heat injuries, lowering the possibility of complications.
f) It is the laser device with ultra pulse, high power, high energy, short treatment period, short healing period, less damage and great photochemical effects.
g) Equipped with various handpieces, together with the system upgrade function and wide application fields.

6 Knowledge Point

Clinical research and application of fractional laser

At present, fractional laser clinical experiments on Asians have been completed in a wide range of places including Thailand, Malaysia, South Korea and Taiwan and Hong Kong, etc. After the strict tests on clinical applications, fractional laser Electronics can be fully applied to Asians. In China, many hospitals carry out clinical experiments and the result is the same as that of multicenter study. The CO2 fractional laser equipment made in China gets a broad recognition by customers and doctors.

From the point of the present treatment effects, fractional laser treatment has little relation to human species, that means, the curative effects are almost the same but different skins have different reactions towards laser.

Fractional laser auxiliary medical treatment

At least 2 weeks before laser treatment, the daily use of vitamin A acid ointment as pretreatment can prevent pigmentation. On the day before laser treatment, the patients should begin to take oral antibiotics for the period of 12 days. People with darker skin should have topical application of hydroquinone at least one month before laser treatment in case of pigmentation. During the therapeutic process, after the first pass of grinding, it should use saline gauze to remove the abraded epidermal tissues so as to see the grinding layers clearly. During the second course of grinding, it should reduce the energy. The derma shrinks obviously and it should be 3 times at most. During the last course of laser treatment, the surface should be coverd with Flexzan dressing for 4 days. After 4 days, patients should use soaked gauze to wet Flexzan dressing and then uncover Flexzan dressing. During the ten days subsequently, use vaseline 4 to 5 times every day.

After the fractional laser therapy, patients should use MEBO or antibiotic ointment. For the large surface of wounds, patients can use vaseline gauze to cover them and make sure of the dryness. After 7 to 10 days, the wounds will scab and heal. The use of decolorizer (hydroquinone drugs) for 2 weeks to prevent pigmentation.

Within 24 hours after the fractional laser therapy, patients should aviod touching water and use sun-screening agents after the scabs drop. After the treatment, patients need to take some antibiotics and Vitamin C and E, or 3g Iv.gtt. of Vitamin C2 once per day in case of pigmentation. Three months after fractional laser therapy, people should aviod using excitant cosmetics and the time interval between two treatments should be no less than one month.

The treatment period of fractional laser

Generally speaking, the fractional laser treatment period of blain holes, pitting scars is 3 to 5 times and the time interval is 1 ~ 3 months. The part that laser penetrates directly forms small white spots in the shape of matrix, and the surrounding skin activates lateral repair mechanism immediately, so in 8 hours, th epiderm will heal completely.

After 3 to 6 days, the decrustation of small white spots makes the skin recover to its normal appearance and the inner collagen can regenerate for 6 months even for 3 years.

The safety of fractional laser

Fractional laser Electronics gained national security certificate many years ago. The treatment is safe and comprehensive.

Indications include acne scars(surgical scars, traumatic scars, scalding scars), all kinds of pigment spots(chloasma, poikiloderma), wrinkles, chalodermia, light ageing skin, etc. At present, these clinical practices are applied to many areas home and abroad with explicit and affirmative effects.

The differences between fractional laser and pixel laser

Fractional laser and pixel laser are totally different in emission principles. There is a cribriform graphics generator installed at the front of the emitter of pixel laser. In the emission of laser, the graphics generator separates the laser beam into multiple tiny beams. The energy of laser beam is separated by distance but the heat reaches the skin

at the same time. Pixel laser doesn’t possess the software operating functions of intellectualization and multiple graphics. However, each laser beam of fractional laser is a brand-new laser beam, and these laser beams are extremely tiny and emitted fast with the state of time interval. So the design of fractional laser makes the heat reach skin in different time which gives skin a cushioning period to endure heat. Fractional laser has the advantage of relieving pains and reducing side-effects.

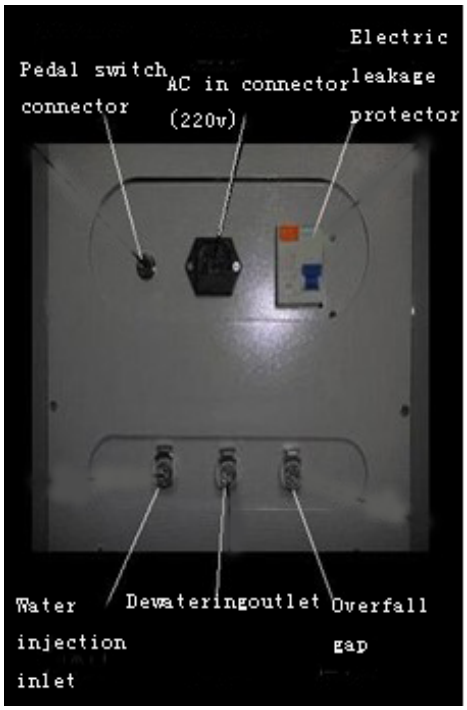
Optical properties of skin

The skin is structured by epidermis and dermis. Because dermatology treatment involves subcutaneous tissue, it is thought as the third layer of skin. Epidermis includes thick layer without hair(palm, sole), thin layer with hair. Thick epidermis includes cornified layer, hyaline layer, granular layer, pricle cell layer, basal cell layer(pricle cell layer and basal cell layer together named as germinal layer). The refresh time of the whole epidermis is 59 to 75 days. The melanin mainly gathers at basal cell layer, and reduces upward. There is little melanin at cornified layer. There are no blood vessels in the whole epidermis. Epidermis is gray semitransparent thin film with the thickness of 66～178um. Dermis is white opaque thick-layer with the thickness of 400～4000um. Subcutaneous tissue is mainly made up of fat, biggish blood vessels leading to dermis, hair, lymphatic vessels, nervus, etc.

When the skin suffers traumatic injuries, it can heal and repair by itself. If the traumatic area is large, scars will occur. If the traumatic area is small, the skin can fully heal. Each tiny light beam of fractional laser is a microtrauma for skin tissues. But kin tissues have the ability to self-repair with the result of perfect skin resurfacing. Except for direct desquamation function, CO2 laser can promote skin reconstruction, collagen remodeling and regeneration via indirect heat conduction.

Chapter 2 Machine installation and commissioning

1 The machine contour structure shown



2 Machine installation

1）Open the machine box

- Check whether the package is well before your open. When there is no abnormal, you can open the machine box. It is prohibited banging on and collision, when you open the package, as the machine equipped with laser tubes and precision optical system.
- Take out the packing list after your open-package and then the host and accessories in turn.Check whether inventory and inside machine parts is good， whether the attachment is fixed or loose firm. You can install after it is confirmed no abnormal or trouble-shooting. If there are any complications, please promptly contact with manufacturer for timely negotiation processing.

2）Filling the cooling water

- Insert CPU male connector into CPU female connector at the overfall gap. Press down the stainless steel button and after hearing the “snap” sound, insert the male connector with a the appropriate snap.
- Connect the canfiller to the water injection inlet using the same method above. Inject water (purified water or medical distilled water) into the instrument. When there is water flowing out of the overfall gap, it proves the water box is full.

■ **Note: During the use of the instrument, CPU male connector must be inserted at the water injection inlet (CPU male connector taken down from the overfall gap is available). Do not use it without water injection. The time interval of water injection is about 60 days.**

3）Installation of the light guiding joint arm as follows:

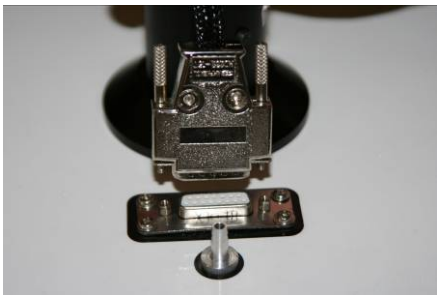
- Guiding light system is made of conducting light arms and connecting block composition, which is fixed in the box seat on top. Check guide light arm, install the guide the light arm in connection seat, and lock seat positioning screws.

Note: light guiding joint arm can only be pulled in the direction of the arrow.

4）Galvanometer scanner installation

- Rotate the scan head in clockwise direction. Pay attention to that the installation mode must correspond with the application mode.

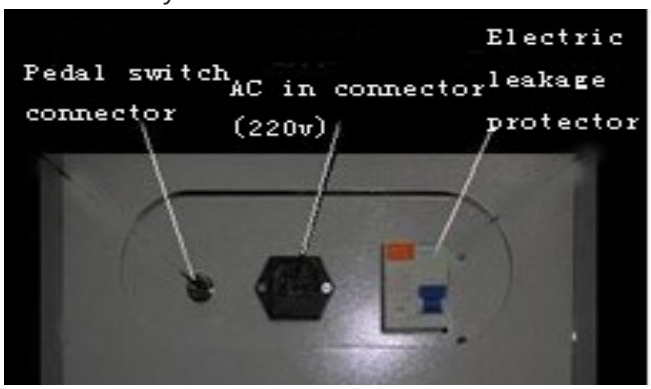
- Installation of the control line of scan head ，when installing insert the control line and lock in the screws on both sides



5）Power line, foot switch connection and installation as follows:

- Insert the end of the power line that connects the instrument into the outlet at the back. Check up to see whether the installation is firm.

- Plug the pedal switch of attachment in socket. Gap and push on, clockwise lock, check if the installation is firmly after hear a sound.



3 Complete machine debugging

1) Electrify debugging

- Plug the pedal switch of attachment in socket. Gap and push on, clockwise lock, check if the installation is firmly after hear a sound
- Check whether the voltage and surgical instrument is consistent。
- Insert the both ends of power wires at the input socket and power socket of the

surgical instrument respectively (power socket must have a good grounding).

- Push the air switch (leakage protector) to "closed" condition
- Spin the abrupt stop switch clockwise (according to the direction indicated by an arrow) to bounce state.
- Insert key to "KeySwitch" place, clockwise 90 ° to open. At that time, machine runs into electricity instrument on the welcome screen.(Instruments in electricity instantly produces charging electric current, some indoor leakage protector can produce protection, this belongs to the normal phenomenon, the leakage protector reset afresh after electrify)

2) CO2 laser output center adjust

- Choose relatively low power after startup ,check the laser output with blank in flat of guide light arm . If it appears that CO2 laser focus flare deviate center position or guidance semiconductor laser light (red) with CO2 laser focus spot no superposition and double point、doube-track such anomalies, you need the following method for laser output center adjust.
- Take down guide light arm, led debugging tubes in connecting seat, then adjust CO2 laser, make the CO2 laser beam alignment debugging tube centers, and coaxial go through debugging tube. Open and choose minimum power, use a blank sheet of paper to check debugging tube end flare position, repeatedly, until the CO2 laser beam adjustment from the debug tube early into the center, and injection from the end center pipe. Take off tube, fit and lock the guide light arm.
- Same as above, until the red semiconductor laser focus with CO2 laser flare superposition.

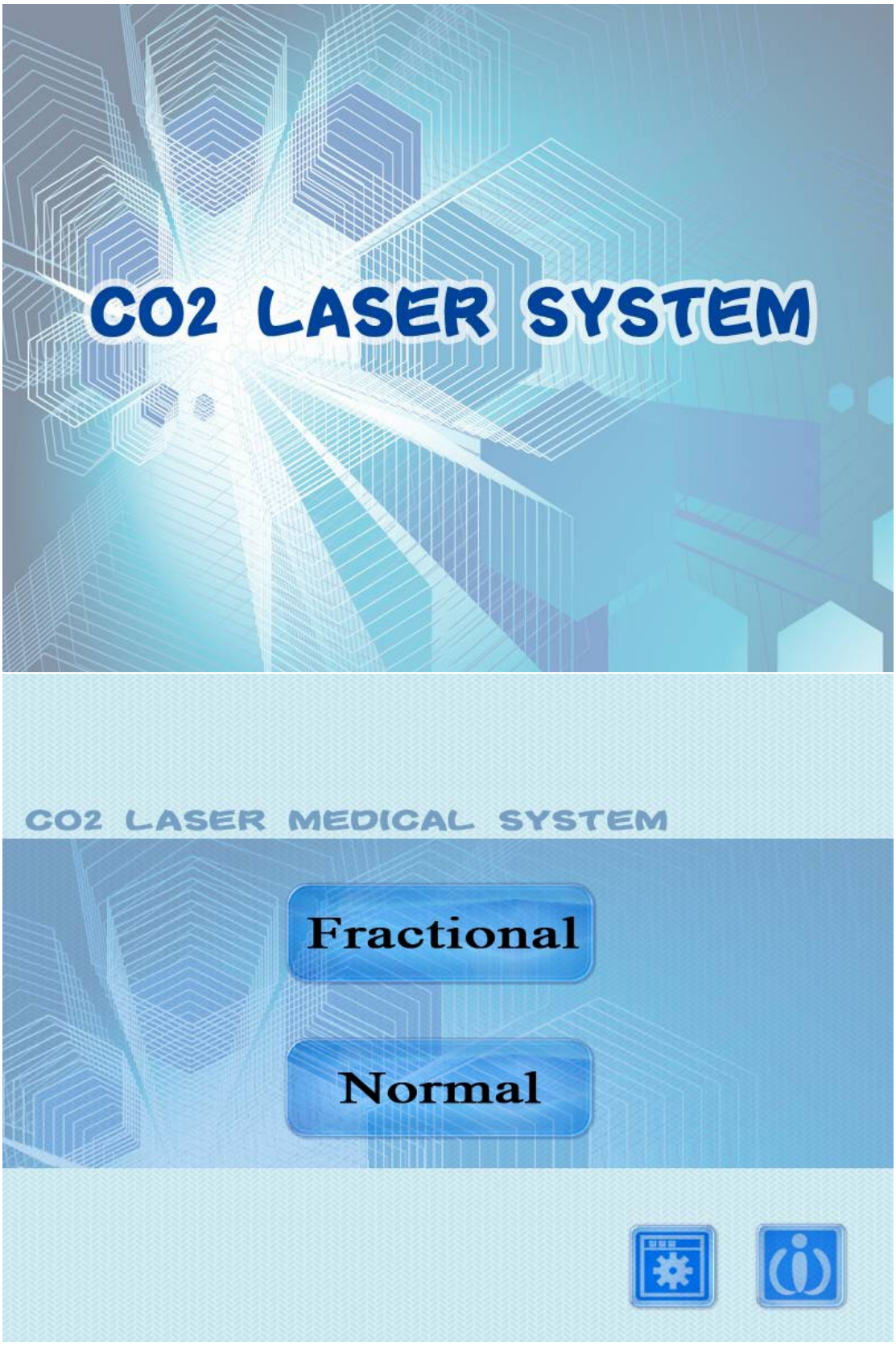
Chapter 3 Operating instructions

1 Starting-up Operations Guide

1) Check whether the circulating water tank is filled with cooling water（it is prohibited to start the power switch without water in tank , otherwise the circulating water pump and laser tube will burn out);
2) Plug the pedal switch of attachment in socket. Gap and push on, clockwise lock, check if the installation is firmly after hear a sound
3) Check whether the voltage and surgical instrument is consistent
4) Insert the both ends of power wires at the input socket and power socket of the surgical instrument respectively (power socket must have a good grounding).
5) Push the air switch (leakage protector) to "closed" condition
6) revolve the emergency stop switch in clockwise direction (according to the direction indicated by an arrow) to to the pop-up state
7) insert the key into the key switch with a clockwise rotation of 90 ° to starting up state, and the instrument is charged with electricity and begins to operate.

2 Setting Operations Guide

1) when you open up the machine，the standby menu will come out in the display screen



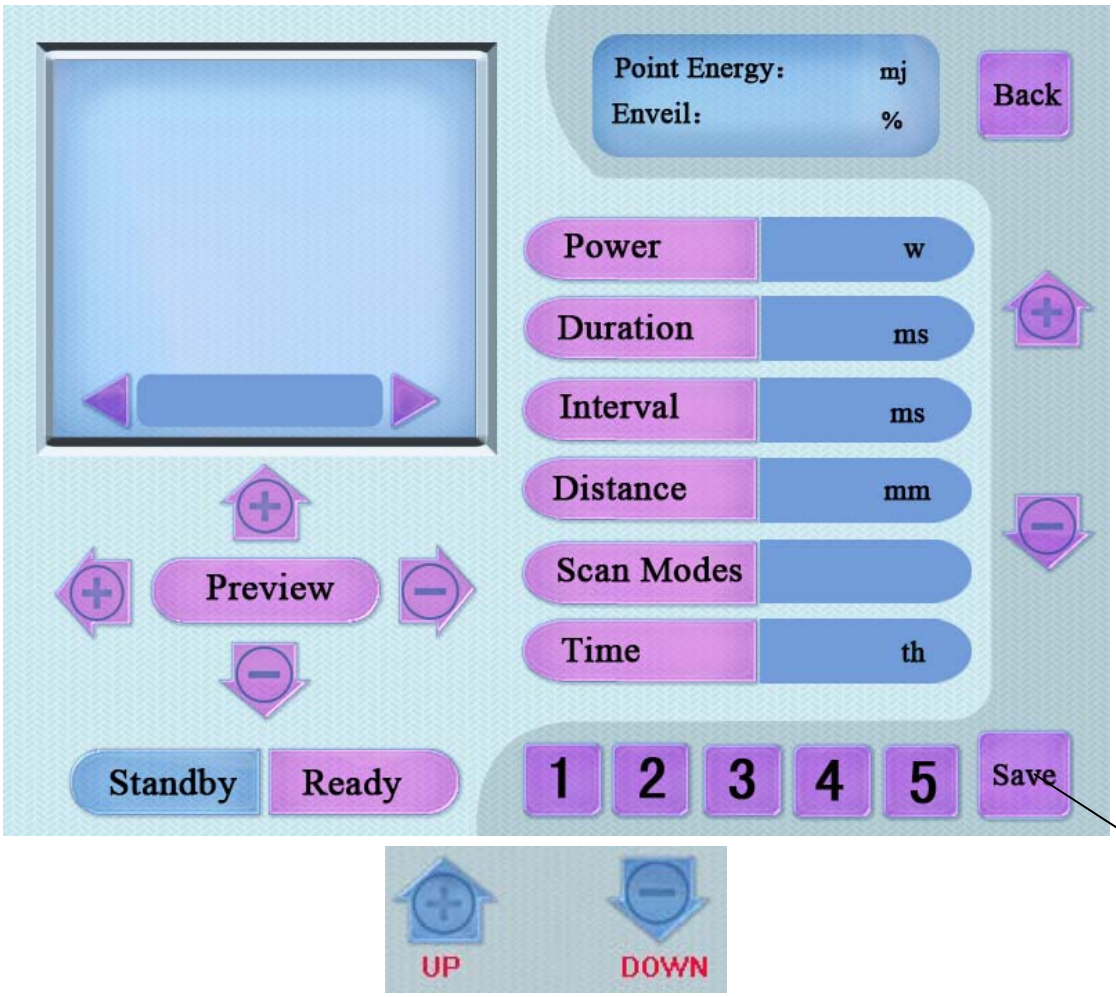
2) When come out the standby mode, please choose the treat model

- Fractional enter into the laser surface (treat model)that is used by the different shapes , area and density
- Normal pulse surface that is used by the laser surgery cutting, once pulse and the

super pulse.

3) Setting method of the fractional model

1) On the Standby Mode, you can chose the fractional model, then the main screen show the fractional model.

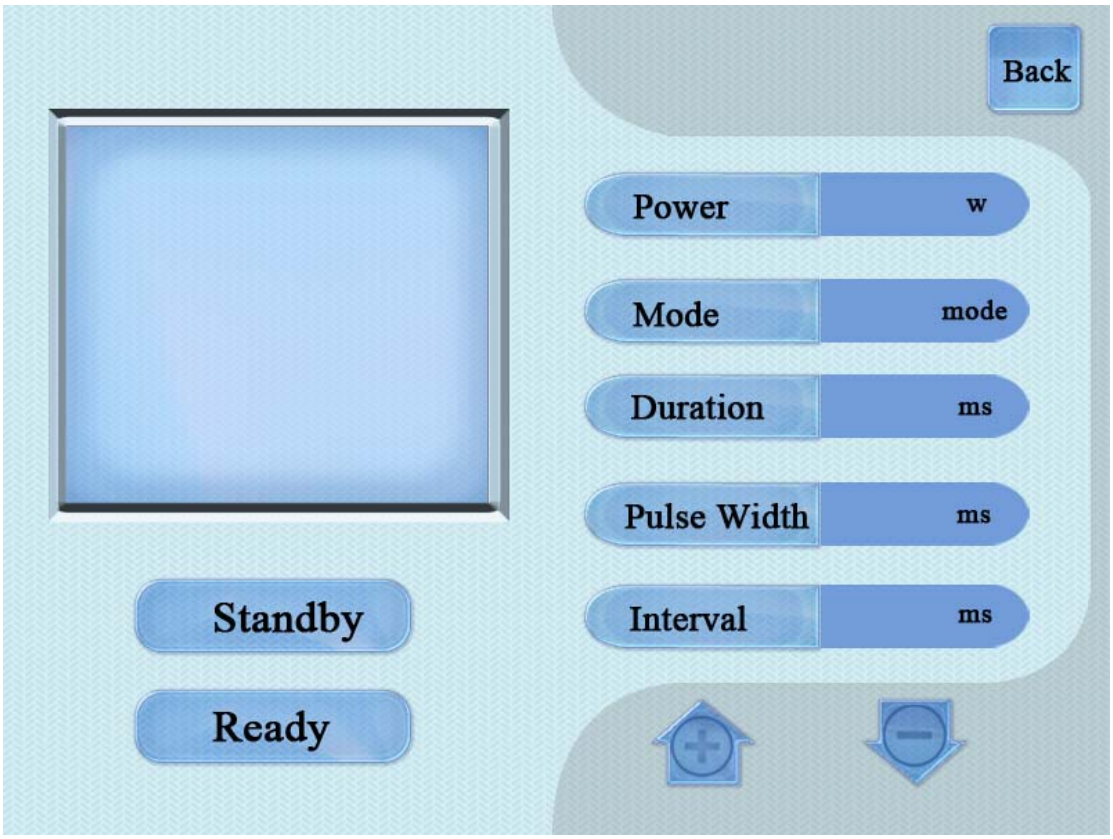


2) When you choose the power model, you may use the button “UP””DOWN” to set the power. It may range from 1 to 250mj.
3) When you choose the duration model ,show you the treat time（unadjustable）.
4) When you choose the interval model , you may use the button “UP””DOWN” to set the spacing interval. It may range from 1ms to 5000ms.
5) When you choose the overlap model , you may use the button “UP””DOWN” to set the repeatedly points. It may range from 1th to 20th.
6) When you choose the distance model , you may use the button “UP””DOWN” to set the point and spacing distance. It may range from 0.1mm to 2.6mm.
7) Choose shape modle and then Set launch form. (change form each time after you press) Launch form: straight, square, triangle, rectangle, hexagon, round and oval
8) At the right side of the mode, choose "diagonals ”button, use the button “UP””“DOWN”to adjust the size of the shape..It may range from 0.1mm to 20mm
9) Choose scanning modle,set launch modle (change modle each time after your press), altogether 3 kinds.Random sequence style; one side as a benchmark and in order style; according to the maxium distance between two points style.

10) Use save button to save the setting value.Please save the setting value in the specified button, for exmaple press 1 after your setting value and the press the save button, when you press 1, it will store input data automatic.
11) After the completion of the setting,please change the STANDBY button to READY modle, In READY modle, press the footswitch to launch laser.
12) At the same time of launching laser, Press PREVIEW button to show red preview effect.
13) After the completion of the launch, press the BACK button to standby screen.

4) CO2 NORMAL(CW) model Application Method

① On the Standby Mode, you can chose the normal model, show the CO2 normal model



② Press power button, use the button “UP””DOWN” to emitted energy. It may range from 1 to 30W.
③ Press mode button, use the button “UP””DOWN” to emitted model Emitted model: Continuous, Single, PULSE
④ opening light and off light time, use the button “UP””DOWN” to adjust time, it may range 0.1 to 100ms.
⑤ spot delay that use Single mode to adjust the time, may range 1～100ms.
⑥ setting overall please enter into the prepare station, you can step on the footswitch to get the laser output.
⑦ If you need please press BACK to return on an interface.

5) Water leval protacting

When the interface transfer to the Water leval protacting it shows that cooling water lower than the warning water level。 At the same time the machine will do not work then enter

into the Water leval protacting station,then the machine cann't lasing.

3 Clinical Operations Guide

1）Clinical Operating procedures

Consulting→ Observing→ Establish treatment files →Cleaning→ Preserved skin →Starting-up→Wipe disinfection →Wear protective glasses and eyeshades →Observe and try→Treatment operation→Postoperative treatment→Record shutdown→Booking visit

1) Consulting: First, the therapists should communicate with the patients to get full understanding of their skins, their present circumstances, their tolerance of pains, whether they will have important social activities recently, their expectant effects of the treatment, and etc. The therapists need to know the skins and psychology of the patients well, judge the intended effect, inquire whether they have contraindications.
2) Observing: According to what patients have said, the therapists should observe the skin natures, the characteristics, the distribution, and the degree of skin lesions carefully. Then the therapists communicate with patients to determine a therapeutic schedule combining a facial three-dimensional structure analysis.
3) Establish treatment files：After relevant consultation, therapists should fill in patient registration forms and invite patients to confirm and sign. At the same time, therapists should establish treatment files and take photos as record files for the convenience of

tracking treatment and further adjustments.

4) Cleaning:Use warm water and facial cleanser to wash the therapeutic part.
5) Preserved skin:Before the treatment, hair around the therapeutic part should be completely removed with the length of 1-3mm as the best.
6) Starting-up：Staring up and select mode, set parameters.
7) Wipe disinfection：Use proper iodine to disinfect, and then use cotton cloth with immersed disinfectant to disinfect for the second time.
8) Wear protective glasses and eyeshades：Operators wear protective glasses，Put on the protective eyeshades for the patients.
9) Observe and try：Check the scars on skin and then decide the therapeutic energy and scanning density. Make sure of the types and spot size of graphics according to the area of therapeutic skin. Try to scan the therapeutic skin first, if the energy is inappropriate, turn down or turn up the energy according to practical situations. When the shallow bleeding or redness appears on large-area scanning, there will be curative effects.
10) Treatment operation：Adjust the scan area to scan again according to the first scanning situation and the scar features. Don't repeat scanning and avoid inflammation of the skin. Fractional laser can be combined with resurfacing in scar removal. The first step can either be fractional laser treatment or resurfacing treatment.
11) Postoperative treatment：After the completion of treatment, the therapists should disinfect a second time with disinfectant (non alcohol) and check up whether there is remaining skin without treatment. If the patients feel scorching hot, icing can ease pains. Smear anti-inflammatory medicine and burn creams
12) Record shutdown ： Keep clear records of the operating parameters and post-operation reactions. Return to standby mode. Rotate the key in counter clockwise to cut off the power supply. Clean the residues on the treatment head and lay the equipment to its place..
13) Booking visit：Ask the patients to pay attention to postoperative cares and arrange treatments for the next time. Pay return visits and make the followings.

Inquiry:Ask about the feelings of patients at all times during the treatment course. Adjust the parameters timely according to patients' responses.
Observation:Observe if there is redness or swollen area in facial treatment area during the treatment.

2）Clinical operation and Matters need attention

1. The operation environment of the instrument should be without disturbance of high-intensity magnetic fields and far away from heat sources and with appropriate temperature.
2. Before starting up, first make sure that the emergency stop switch and leakage protector are in the upspring state and check if there is full water inside the instrument.
3. Water injection inlet must be inserted with CPU male connector before running, or the instrument cannot be used.

4. Select the corresponding graphics according to treatment needs.
5. Parameters and energy should be adjusted from low to high with small span range within 2 energy units. Observe while operating and adjust according to patients' feelings.
6. Wipe disinfection whenever necessary according to treatment needs and don't reuse it.
7. Don't repeat treatments on the lesions.
8. Adjust the parameters to a lower state according to patients' pain tolerance while treating the parts of obvious bone tissues (forehead, nose, eyes).
9. The circle ring on the treatment scanning head should press on skin tightly to make sure of full contact. Keep the treatment handpiece press on skin perpendicularly.
10. Turn off the treatment switch before taking away the scanning head from skin.
11. If the long-time operation makes the treatment handpiece getting hot, the operation must be stopped under the standby mode.
12. Pay attention to the use of the emergency stop switch. When the emergency occurs, you can press the stop switch directly.
13. People must use three-core electrical socket outlet with ground connection wire to supply power. Electric supply installation should fit the rated output requirements of the instrument.

3）The nursing care and notes after the operation

① Avoid exposure in the blazing sun 2 weeks before the treatment.

② The immediate reaction is the infected part getting white or gray. There will be scorching hot pains after the operation. The skin will be red and swollen or have mild blisters. The scorching hot pains will disappear several hours after the operation. After 2-3 days, the scabs appear. After 1-2 weeks, the scabs fall off naturally.

③ Avoid water within 3 days after the operation. Smear antibiotic ointment or repair medicine to prevent infection.

④ Don't scratch the therapeutic parts during the healing process. Let the scabs fall off naturally.

⑤ Pay attention to avoiding sunshine.

⑥ Two weeks after treatment, the patients are prohibited to eat spicy excitant foods and beef, mutton, seafood etc.

⑦ If patients feel any discomfort after the treatment, they need to consult the instrument operator. Don't make self-assertions or act on your own

Chapter 4 Routing maintenance

- Instrument installation and use of the environment require clean, low dust, temperature of 5 ° c - 35 degrees Celsius, more than 80% of relative humidity, noncorrosive particles and conductive dust, which avoid strong magnetic field interference.
- Choose good ventilation and do not put in the radiator, heating ventilation pipe and near the heat source or somewhere easily occur mechanical vibration.
- After the water injection, switch the equipment 3-5 times repeatedly to ensure the water cycle.
- To ensure the accuracy of the output energy, please keep the treatment with hand export of each place clean.
- Wait for 5 minutes after using the instruments then shut off the power, clean the treatment head and keep them.
- When clean the therapeutic room, you should avoid to the dust, especially the room with the carpet and ensure vents smoothly.
- Clean the treatment head thoroughly and regularly to keep spotless, avoiding to weakening the output of laser or e light. You can use lens paper or a cotton swab dipped in anhydrous alcohol (95% alcohol) or special lens cleaner wipe gently.
- Instrument should be filled up with water, please exchange water as the requirement of spacing interval and the water quality.
- When operating, the treatment head and therapeutic part should strictly prohibit using inflammable to clean and disinfection.
- Do not use gas, ethanol, thinner and other chemical processing dishcloth clean chassis surface.
- Instrument structure is complex and strictly prohibit disassembling voluntarily when malfunction please be sure to promptly contact with the company's customer operations.
- In order to ensure the normal use of the instrument, please directly contact with the manufacturer or agent when you need to purchase or replace the equipment accessories.

■ **Attention：Customers just need to make daily cleaning maintenance or process simple maintenance repairs under the guide of technical personnel while the others should take by the technical personnel authorized by the company. Shut down and pull out the power cord before the maintenance, as it is harmful for the body and electric equipment.**

Chapter 5 Transportation and storage

- ✧ Thoroughly drained before transport.
- ✧ Instrument maintenance and transportation require the environmental temperature of - 20 ° C---55 ° C, relative humidity of less than 75% and good air quality.
- ✧ This machine is precision instruments should avoid vibration and impact during the mobile and transport, forbidden and prevent damage to the inversion of the system in the machine and electronic devices
- ✧ Do not move or transport in the dust without dustproof packaging.
- ✧ If this instrument do not use long-term, cut off the electricity supply, drain thoroughly and remove the treatment tool to keep independently.
- ✧ When come into reuse, you should reinstall as the first time.

Chapter 6 Common maintenance

Serial number	Fault phenomena	malfunction analysis	Solution	Remarks
1	Machine without electricity	Whether the power plug insert or damage	Reconnect or exchange the power line.	Overlength continuous working period and high humidity tank.
2		The emergency stop switch, key switch or the leakage protector are not open.	Open the appropriate switch, make it is in closed state.	
3		The emergency stop switch or the key switch break down	Change the emergency stop switch or the key switch	
4		The fuse burnout.	Change the fuse	
5	foot switch malfunction	Attachment unit interface connecting with host is not inserted	For checking with the matters need attention or contacting connector again	
6		Foot switch or part of power control components are damaged	Contact the company for service	
7	Significantly reduced the output energy	Treatment head has been polluted.	Cleaning the treatment head	